United States Environmental Protection Agency

Office of Prevention, Pesticide and Toxic Substance (7501C)

Pesticide Fact Sheet

Name of Chemical: **Fenazaquin**
Reason for Issuance: **Import Tolerance**
Date Issued: **August 2007**

Description of Chemical

Common Name	Fenazaquin
Chemical Name:	4-tert-butylphenethyl quinazolin-4-yl ether (IUPAC) 3-[2-[4-(1,1-dimethylethyl) phenyl] ethoxy] quinazoline (CAS)
Trade Names:	Pride® , Magister®
EPA Chemical Code:	044501
Chemical Abstracts Service (CAS) Number:	120928-09-8
Chemical Class:	Quinazoline
Registration Status:	No Registered Products
Pesticide Type:	Miticide and Insecticide
Mode of Action:	Disrupt biochemistry of insect mitochondria
Route of Exposure:	Ingestion and Dermal
Producer:	Pentagon Fine Chemicals (England)

Use Pattern and Formulations

Fenazaquin belongs to the quinazoline class of chemicals and is a pesticide intended to control mites and insects (especially whiteflies). Its route of exposure is ingestion and dermal, and its mode of action is the disruption of the biochemistry of insect mitochondria.
In 2005 countries throughout Europe, North Africa, the Middle-East, Asia, and in Latin America had approved its use on pome and citrus fruits. The majority of usage (>80%) is in Europe. Table 1 provides a general summary of the use directions for apples, pears and citrus fruits. The Agency also received a label for a 200 g/L FlC formulation from the U.K., with use directions for apples. This U.K. label specifies a maximum use rate of 150 g ai/ha on apples with a 30-day PHI.

Table 1. Summary of Directions for Use of Fenazaquin.

Applic. Timing, Type, and Equip.	Formulation [g ai/L]	Applic. Rate (g ai/ha) [lb ai/A]	Max. No. Applic. per Season	Max. Seasonal Applic. Rate (g ai/ha) [lb ai/A]	PHI [1] (days)	Use Directions and Limitations
Apples/Pears [2]						
Early to late season foliar application [3]; ground equipment	200 g/L FlC	100-250 [0.09-0.22]	1	250 [0.22]	28	Only a single application is allowed per calendar year
Citrus Fruits (Oranges, Mandarins, Lemons) [4]						
Early to late season foliar application; ground equipment	100 g/L EC 200 g/L FlC	100-450 [0.09-0.40]	1	450 [0.40]	21	Only a single application is allowed per calendar year

[1] The PHIs listed are the minimums allowed in any country; longer PHIs are required in some countries.
[2] Fenazaquin is reportedly approved for use on apples and/or pears in the following countries: Algeria, Argentina, Azerbajian, Bulgaria, Chile, China, Croatia, Cyprus, Czech Rep., France, Germany, Greece, Hungary, Israel, Italy, Jordan, Korea, Lebanon, Macedonia, Morocco, Peru, Poland, Portugal, Romania, Russia, Slovakia, Saudi Arabia, Serbia, Slovenia, South Africa, Spain, Switzerland, Taiwan, Turkey, United Kingdom, Uzbekistan, and Yugoslavia.
[3] Apply after petal fall.
[4] Fenazaquin is reportedly approved for use on citrus in the following countries: Chile, China, Greece, Italy, Korea, Morocco, South Africa, Spain, Taiwan, and Turkey.

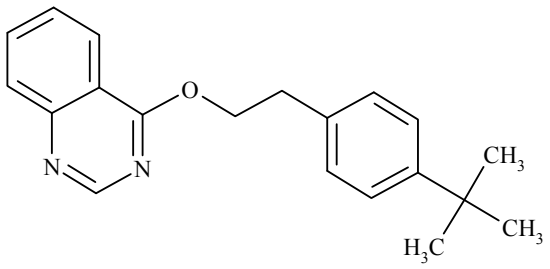
Science Findings

Product chemistry data supporting the use of fenazaquin are summarized below.

1. Physical/Chemical Structure and Nomenclature:

Table 2 presents the structure and nomenclature of fenazaquin below.

Table 2. Fenazaquin Nomenclature.

Compound	
Common name	Fenazaquin
Molecular weight	306.4
Company experimental names	XDE-436, EL-436, XRD-562;,DE-436
IUPAC name	4-*tert*-butylphenethyl quinazolin-4-yl ether
CAS name	4-[2-[4-(1,1-dimethylethyl)phenyl]ethoxy]quinazoline
CAS registry number	120928-09-8
End-use products (EP)	100 g/L EC (MAGISTER® 100 EC) 200 g/L FlC (MAGISTER® 200 SC and MATADOR® 200 SC)

2. Physical and Chemical Properties

Table 3 presents the physicochemical properties of fenazaquin below.

Table 3. Physicochemical Properties of Fenazaquin.

Parameter	Value	Reference
Melting point/range	77.5-80ºC	Evaluation on Fenazaquin, Issue No. 150, Pesticides Safety Directorate, Depart. for Environment, Food, and Rural Affairs, U.K., March 1996
pH	Not determined due to low solubility	
Relative Density	1.16 at 21ºC	
Water solubility (20°C)	0.102 mg/L at pH 5 & 7 0.135 mg/L at pH 9	
Solvent solubility (g/L at 23ºC)	acetonitrile 33-50; acetone 400-500 n-chlorobutane >500; chloroform >500 dichloromethane >600; ethyl acetate 400-500 dimethylformamide 300-400; ethylene glycol <5 hexane 33-50; isopropanol 50-100 methanol 50-100; toluene >500 N-methyl-2-pyrrolidone >500	
Vapor pressure (25ºC)	1.9×10^{-5} Pa	
Dissociation constant, pK_a	2.44	
Octanol/water partition coefficient, $Log(K_{OW})$	5.71 at 25ºC; 5.51 at 20ºC	
UV/visible absorption spectrum	Not available	

3. Toxicology Summary

Table 4a and 4b lists toxicity studies that the applicant has submitted. These include an acute oral study and subacute, chronic, carcinogenicity, developmental and mutagenicity studies.

Table 4a. Acute Toxicity Data – Fenazaquin Technical

Study/ Species	MRID	Results	Toxicity Category
870.1100 Acute Oral (Rat)	46684003	LD_{50} = 134/138 mg/kg (male/female)	II
870.1200 Acute Dermal, Rabbits	N/A		
870.1300 Acute Inhalation, Rats	N/A		
870.2400 Primary Eye Irritation, Rabbits	N/A		
870.2500 Primary Skin Irritation, Rabbits	N/A		
870.2600 Dermal Sensitization, Guinea pig	N/A		

Table 4b. Subchronic, Chronic and Other Toxicity Profile - Fenazaquin Technical			
Guideline No.	**Study Type**	**MRID No. (year)/ Classification /Doses**	**Results**
870.3100	90-Day oral toxicity (rat) (Fischer 344 from Charles River Laboratories Inc., Wilmington, MA)	45029904 (1992) Acceptable/guideline 0, 15, 45, 150, or 450 ppm M: .0, 1.0, 3.0, 9.6, and 28.7 mg/kg/d F: 0.0, 1.2, 3.5, 11.5, and 33.0 mg/kg/d	NOAEL = 9.6 mg/kg/day LOAEL = 28.7 mg/kg/day based on decreased body weight, body weight gain, and food consumption.
870.3100	90-Day oral (gavage) toxicity (rat) (Fischer 344 from Charles River Laboratories Inc., Wilmington, MA)	45029905 (1992) Acceptable/guideline 0, 1, 3, 10, or 30 mg/kg/day	NOAEL = 10 mg/kg/day LOAEL = 30 mg/kg/day based on decreased body weight, body weight gain, and food consumption/efficiency.
870.3100	90-Day oral toxicity (hamster)	45029903 (1992) Acceptable/guideline Males: 0, 5, 25, 75, or 150 mg/kg/day Females: 0, 5, 25, 50, or 100 mg/kg/day	NOAEL = 25 mg/kg/day LOAEL = 75/50 mg/kg/day (M/F) based on decreased body weight and testicular atrophy.
870.3150	90-Day oral toxicity (dog)	45029901 (1992) Acceptable/guideline 0, 1, 5, or 15 mg/kg/day	NOAEL = 5 mg/kg/day LOAEL = 15 mg/kg/day based on decreased body weight, body weight gain, and food consumption/efficiency.
870.3700a	Prenatal developmental (rat) (Crl:CD® (SD) BR from Charles River Laboratories Inc., Portage, Michigan)	45029911 (1989) Acceptable/guideline 0, 3, 10, 40 mg/kg/d	**Maternal** NOAEL = 10 mg/kg/day LOAEL = 40 mg/kg/day based on findings (as early as GD 6-9) of decreased body weight gain, food intake, and food efficiency. **Developmental** NOAEL = 40 mg/kg/day LOAEL = > 40 mg/kg/day.
870.3700b	Prenatal developmental (rabbit)	45029912 (1990) Unacceptable/guideline 0, 3, 13, 60 mg/kg/d	**Maternal** NOAEL = 60 mg/kg/day LOAEL = > 60mg/kg/day based on lack of findings. **Developmental** NOAEL = 60 mg/kg/day LOAEL = > 60 mg/kg/day based on lack of findings.

870.3800	Reproduction and fertility effects (rat) (Crl:CD® (SD) BR from Charles River Breeding Laboratories, Raleigh, NC)	46684001 (1991) Acceptable/guideline 0, 1, 5, or 25 mg/kg/d	**Parental/Systemic** NOAEL = 5 mg/kg/day LOAEL = 25 mg/kg/day based on excessive salivation and decreased body weight/weight gain and food intake. **Reproductive** NOAEL = 25 mg/kg/day LOAEL = >25 mg/kg/day. **Offspring** NOAEL = 5 mg/kg/day LOAEL = 25 mg/kg/day based on decreased weight gain during lactation.
870.4300	Chronic toxicity/ Carcinogenicity Rat (Fischer 344 from Taconic Laboratory Animals and Services, Germantown, N.Y)	45029907 (1992) Acceptable/guideline 0, 10, 100, 200, or 400/450 (males/females) ppm M: .0.0, 0.46, 4.5, 9.2, and 18.3 mg/kg/d F: 0.0, 0.57, 5.7, 11.5, and 25.9 mg/kg/d	NOAEL = 9.2 mg/kg/day LOAEL = 18.3 mg/kg/day based on decreased body weight, body weight gain, and food consumption/efficiency.
870.4100	Chronic toxicity (dog)	45029906 (1993) Acceptable/guideline 0, 1, 5, or 12 mg/kg/d	NOAEL = 5 mg/kg/day LOAEL = 12 mg/kg/day based on decreased body weight, body weight gain, and food consumption/efficiency.
870.4200	Carcinogenicity (hamster)	45029913 (1992) Acceptable/guideline 0, 2, 15, or 30/35 (males/ females) mg/kg/d	NOAEL = 2/15 mg/kg/day (M/F) LOAEL = 15/35 mg/kg/day (M/F) based on decreased body weight (F) and body weight gain (M/F)-food consumption was not recorded. **No evidence of carcinogenicity**
870.5100	Gene Mutation Bacterial reverse mutation assay	44742909 (1989) Acceptable/guideline	**Negative** ± S9 up to 3000 µg/mL in the absence of cytotoxicity with precipitation above this concentration.
870.5300	Gene Mutation Mammalian cell culture (mouse lymphoma cells)	44742908 (1989) Acceptable/guideline	**Negative** –S9 severely cytotoxic at concentrations up to10 µg/mL **Positive** + S9 at concentrations (up to 12 µg/mL) that were severely cytotoxic (10-20% survival)
870.5375	Cytogenetics Chromosomal aberrations (CHO cells)	44742907 (1989) Acceptable/guideline	**Negative** ± S9 for clastogenic/aneugenic activity up to concentrations that reduced cell survival by ≈50% (1 µg/mL-S9; 60 µg/mL+S9). Compound precipitation was evident at levels ≥ 24 µg/mL +/-S9.

870.5395	Micronucleus Assay (mouse)	44742904 (1989) Acceptable/guideline	**Negative** for clastogenic/aneugenic activity in mouse bone marrow up to the highest dose tested in males/females (1600/1200 mg/kg, repeated on two days). In a preliminary study, the median lethal doses (MLD) were 3191/ 2430 mg/kg (M/F).
870.5915	*In vivo* SCE Assay (mouse)	44742905 (1989) Unacceptable/guideline (each data point had 3 males which is lower than the guideline recommended 5/sex/dose)	**Negative** in this cytogenetic assay (no increase in SCE) of bone marrow from male CD-1 mice treated with doses up to levels that produced death (2000 mg/kg).
870.5550	*In vitro* UDS Assay	44742906 (1989) Acceptable/guideline	**Negative** up to cytotoxic concentrations (≥0.5 to 1.0 µg/mL).
No Guideline	*In viro* UDS Assay	45029908 (1989) Acceptable/non-guideline	**Negative** for DNA damage and repair in this *in vivo/in vitro* test system up to the maximum tolerated dose (600 mg/kg).

870.7485	Metabolism and pharmacokinetics (species)	44742901 (1992) Unacceptable/guideline	Irrespective of dose, most of an orally administered radiolabeled fenazaquin was in rat excreta (89.5-107.7%) at 168 hours with approximately 20% of the radiolabel in urine. After initial uniform distribution, about 0.5-1.6% of the dose was in the carcass and below 0.04% of the dose in each tissue. There was no radiolabel in the expired air and no evidence for bioaccumulation. Based on excretion and tissue residue data, bioavailability is conservatively estimated at about 20% of an administered dose. Non-metabolized fenazaquin was higher in feces (1.0-15.0% of administered dose) than in urine (below 0.5% of dose) and some of the major metabolites were identified including AN-1 (urine) in addition to the fecal metabolites F-1, F-2 and F3. The metabolic pathway of fenazaquin involved cleavage of the ether bond, resulting in the formation of the respective alcohol (4-OH quinazoline metabolite) and carboxyl acid (AN-1) derivatives. Other biotransformation reactions included oxidation of one of the methyl groups on the alkyl side chain to produce either an alcohol (F-1) or carboxylic acid (F-2) metabolites. Finally, hydroxylation at the O-ether alkyl moiety of F-1 or the 2-position of the quinazoline ring of F-2 resulted in F-1A and F-3 metabolites, respectively.

Non-guideline	Special studies: Potential to induce hepatic hypertrophy and peroxisome acyl-CoA oxidase activity in mice	44742903 (1993) Acceptable/non-guideline	Fenazaquin and several of its analogs (with varying susceptibilities to metabolism of the ether bond or the alkylbenzene substituents) were assessed for their ability to increase liver peroxisomal fatty acyl-CoA oxidase (FAO, a marker of peroxisomal proliferation) and relative liver weight in groups of five CD-1 female mice. The FAO peroxisomal activity data indicate that oxidation of the t-butyl substituent on the alkylbenzene moiety (to the corresponding carboxylic acid) of fenazaquin and related compounds appears to be the critical step for heptatocellular peroxisome proliferation.

4. Hazard Characterizations

a. Acute Exposure

Fenazaquin is acutely toxic when administered orally in rats (LD50 = 134/138 mg/kg in males/females). No data were made available on acute toxicity by other routes of exposure.

b. Repeated Exposure

The **major findings** following repeated oral administration in rats, hamsters and dogs were decreases in **body weight, body weight gain, food intake, and food efficiency.** With one exception, these findings occurred at the highest tested dose (≤ 35 mg/kg/day) in each of the subchronic or chronic toxicity studies.

In the 90-day hamster study which used doses up to 150 (males) and 100 (females) mg/kg/day, the magnitude of the decrease was dose-dependent for body weight (8-23% and 19-28% in males and females, respectively) and body weight gain (16-74% and 39-61% in males and females, respectively); however, due to food spillage problems, food consumption and efficiency data were not presented. In the same study, testicular atrophy (dose-dependent decreased weight and hypospermatogenesis) and decreased prostate weight/relative weight were also evident at 75 and 150 mg/kg/day.

At the doses used (≤ 35 mg/kg/day) in all remaining subchronic and chronic toxicity studies, there were no organ specific toxicity findings.

Similar effects on body weight/weight gain and food intake/efficiency were also identified in parental animals of the **rat developmental and reproduction studies and in the offspring of the reproduction rat study.** There were no developmental findings in the rat study (up to 40 mg/kg) and no parental or developmental findings of any kind

up to 60 mg/kg/day in the rabbit developmental study.

There are **no specific neurotoxicity studies,** including acute-, subchronic-, or developmental. There is no clear evidence of consistent neurotoxicity findings in the available toxicity studies. Findings of excessive salivation in the rat reproduction toxicity study are unlikely to be a sign of neurotoxicity since the chemical is not known to have a neurotoxic mode of action and no similar clinical findings were reported in the 90-day or chronic/carcinogenicity studies.

Fenazaquin appears to increase peroxisomal proliferation in rats and mice but hamsters were resistant since peroxisomal beta oxidation was not increased in the 90-day hamster study.

A supplementary report (MRID 44742910) was provided as justification for using the hamster as an appropriate animal model for fenazaquin. Based on the report, the NOAEL in a three-month feeding study in mice was 150 mg/kg/day in males and > 600 mg/kg/day in females and the only effect observed was a decrease in body weight gain. (The actual 90-day mouse study was not made available to EPA.) In the similar rat and hamster toxicity studies, the NOAEL was 10 and 25 mg/kg/day, respectively, based on decreased body weight gain (in addition to hamster testicular atrophy) thus showing that the rat and hamster were more sensitive to the effects of fenazaquin than mice. Additionally, a comparative pharmacokinetic analysis showed that peak plasma levels were not proportional to dose in both male and female mice, but area under the curve (AUC) was well correlated to dose. Peak plasma levels were observed between 0.5-4 hours post dosing. Plasma elimination rate of fenazaquin was dose dependent and became slower at doses ≥300 mg/kg. Conversely, rat peak plasma level was reached in 8 hours and AUC was proportional to dose while elimination was independent of dose. Results from the pharmacokinetics study indicated similar pharmacokinetics of radiolabeled fenazaquin in the hamster at doses between 5 and 125 mg/kg with peak plasma levels being reached in 2 hours.

The hamster was chosen over the mouse for a second carcinogenicity study based on findings in the hamster of slower elimination kinetics and greater systemic toxicity. Because of the high tolerance of the mouse in regard to effect on body weight gain, the laboratory chose to use Syrian golden hamsters as a secondary rodent model, along with rats.

5. Food Quality Protection Act Considerations

Based on the hazard and exposure data, the fenazaquin risk assessment team has recommended that the FQPA Safety Factor be reduced to 1X because:

a. there is an adequate toxicity database for the food import tolerance on fenazaquin;
b. the exposure data are complete or are estimated based on data that reasonably account for potential exposures;
c. there is no evidence of susceptibility following *in utero* and/or postnatal exposure in the developmental toxicity studies in rats or rabbits, and in the two-generation

rat reproduction study;

d. there are no residual uncertainties concerning pre- and postnatal toxicity;
e. the dietary food exposure assessment utilizes proposed tolerance level or higher residues and 100% CT information for all commodities and, therefore, will not be underestimated;
f. there is no potential for dietary drinking water exposure; and
g. there are no residential uses.

6. Classification of Carcinogenic Potential

EPA reviewed the carcinogenicity study in hamsters, as well as the carcinogenicity study conducted in rats, the mutagenicity studies, and discussed the possible carcinogenic mode of action of fenazaquin. Based on the weight of evidence of these studies, and in accordance with the 2005 Guidelines for Carcinogen Risk Assessment, the members concluded that the negative hamster findings along with the negative tumor findings in the 24-month rat study and negative mutagenicity findings support a cancer classification of "**Not likely to Be Carcinogenic to Humans**" for fenazaquin. EPA concluded that the carcinogenicity study in hamsters is "Acceptable/Guideline" and satisfies the guideline requirement for a carcinogenicity study [OPPTS 870.4200; OECD 451] in hamsters. Despite the enteritis and administration of antibiotics, the study is considered acceptable based on the adequacy of dosing based on evidence of systemic toxicity, acceptable survival rate at 17 months, and lack of evidence for tumorigenicity in two species, hamsters and rats.

7. Toxicological Doses and Endpoints

Table 5 summaries the toxicological doses and endpoints for use in the fenazaquin dietary assessment.

Table 5. Summary of Toxicological Doses and Endpoints for Fenazaquin for Use in Dietary and Non-Occupational Human Health Risk Assessments				
Exposure/ Scenario	Point of Departure	Uncertainty/FQPA Safety Factors	RfD, PAD, Level of Concern for Risk Assessment	Study and Toxicological Effects
Acute Dietary (All Populations, including Females 13-49 and Infants/Children)	NOAEL= 10 mg/kg/day	UF_A= 10 x UF_H= 10 x FQPA SF= 1 x	Acute RfD = 0.1 mg/kg/day aPAD = 0.1 mg/kg/day	Rat developmental toxicity LOAEL = 40 mg/kg/day based on findings (as early as GD 6-9) of decreased body weight gain, food intake, and food efficiency.
Chronic Dietary (All Populations)	NOAEL= 5 mg/kg/day	UF_A= 10 x UF_H= 10 x FQPA SF= 1 x	Chronic RfD = 0.05 mg/kg/day cPAD = 0.05 mg/kg/day	Rat two-generation toxicity study LOAEL = 25 mg/kg/day based on excessive salivation and decreased body weight/weight gain and food intake.
Short- and Intermediate-Term Incidential Oral (1-30 days; 1-6 months)	These exposure scenarios do not apply to this risk assessment because there are no proposed registered residential uses of fenazaquin.			
Short- , Intermediate-, and Long-Term Dermal (1-30 days; 1-6 months)	These exposure scenarios do not apply to this risk assessment because there are no proposed registered residential or occupational uses of fenazaquin.			
Short-, Intermediate-, and Long-Term Inhalation (1-30 days; 1-6 months)	These exposure scenarios do not apply to this risk assessment because there are no proposed registered residential or occupational uses of fenazaquin.			
Cancer (oral, dermal, inhalation)	Classification: "Not likely to be Carcinogenic to Humans" based on the absence of significant tumor increases in two adequate rodent carcinogenicity studies.			

Point of Departure (POD) = A data point or an estimated point that is derived from observed dose-response data and used to mark the beginning of extrapolation to determine risk associated with lower environmentally relevant human exposures. NOAEL = no observed adverse effect level. LOAEL = lowest observed adverse effect level. UF = uncertainty factor. UF_A = extrapolation from animal to human (interspecies). UF_H = potential variation in sensitivity among members of the human population (intraspecies). FQPA SF = FQPA Safety Factor. PAD = population adjusted dose (a = acute, c = chronic). RfD = reference dose. N/A = not applicable.

8. Dietary Exposure and Risk

Acute and chronic dietary risk analyses were made with the DEEM-FCID™ model to form a conservative evaluation of exposure for fenazaquin. The acute dietary analysis made at the 95th percentile indicate risk estimates are reasonably below the 100% of the aPAD threshold level of concern for each population subgroup. For the most highly exposed population subgroup, children 1-2 years of age, acute dietary risk was estimated to be 48% of the aPAD with an exposure of 0.047574 mg/kg/day. In conjunction, chronic analysis yielded risk estimates well below the 100% of the cPAD threshold level

of concern for each population subgroup. Likewise, for children 1-2 years of age, chronic dietary risk proved to be 25% of the cPAD with an exposure of 0.012690 mg/kg/day. Table 6 summarizes the results of the acute and chronic dietary assessments.

Table 6. Summary of Dietary Exposure and Risk for Fenazaquin

Population Subgroup	Acute Dietary (95.0 Percentile)		Chronic Dietary		Cancer	
	Dietary Exposure (mg/kg/day)	% aPAD[1]	Dietary Exposure (mg/kg/day)	% cPAD[1]	Dietary Exposure (mg/kg/day)	Risk
General U.S. Population	0.014857	15	0.003092	6.2	NA[2]	NA
All Infants (< 1 year old)	0.011808	12	0.004650	9.3	NA	NA
Children 1-2 years old[3]	**0.047574**	**48**	**0.01269**	**25**		
Children 3-5 years old	0.034100	34	0.009100	18		
Children 6-12 years old	0.020877	21	0.004865	9.7		
Youth 13-19 years old	0.015223	15	0.002967	5.9		
Adults 20-49 years old	0.010338	10	0.001967	3.9		
Adults 50+ years old	0.008336	8.3	0.002020	4.0		
Females 13-49 years old	0.011299	11	0.002177	4.4		

[1] Report %PADs to 2 significant figures.
[2] Not Applicable (NA).
[3] The values for the highest exposed population for each type of risk assessment should be bolded.

9. Anticipated Residue and Percent Crop Treated (%CT) Information

EPA assumes that fenazaquin residues are in/on all registered food commodities at tolerance levels and that 100% of all RACs are treated.

10. Aggregate Risk Assessments and Risk Characterization

There are no proposed or existing residential uses for fenazaquin. The proposed use is limited to apples, pears and citrus fruits exported to the U.S. only. The exposure/risk assessment is limited to dietary food only (**no aggregate**).

11. Occupational Exposure and Risk

As this assessment is for an import tolerance, the anticipated exposure route for the US population is via the diet (food only). Thus, occupational exposure risk assessments for incidental oral, dermal, and inhalation routes of exposure are not required.

12. Proposed and Established Tolerances

Table 7 lists the proposed and established tolerance for Fenazaquin. EPA established no tolerances for livestock commodities as EPA does not expect any residues in those commodities.

Table 7. Tolerance Summary for Fenazaquin.

Commodity	Proposed Tolerance (ppm)	Recommended Tolerance (ppm)	Comments; *Correct Commodity Definition*
Apple	0.2	0.2	Adequate data are available
Pear	0.2	0.2	Adequate data are available
Citrus fruits	0.5	0.5	Adequate data are available. *Fruit, citrus, group 10, except grapefruit*
Citrus oil	None	10	Based on HAFT residues of 0.40 ppm and an average processing factor of 25x for citrus oil, a separate tolerance is required for *Citrus, oil*
Apple, pomace, wet	None	None	Although residues were shown to concentrate in wet apple pomace (1.7x) and dried citrus pulp (3.2x), tolerance are not required for these feedstuff as they are unlikely to be imported.
Citrus, pulp, dried	None	None	

13. Data Gaps

A. Current Import Tolerances

1. Additional storage stability data are required on apples to support the sample storage intervals from the tests conducted on pears and apples in Argentina during 1993/94 and on apples in Chile during 1995. Gowan must submit data demonstrating the stability of fenazaquin in frozen apples for intervals up to 25 months.

2. Gowan must submit a reference standard for fenazaquin to the National Pesticide Standards Repository.

B. Future Tolerances

1. Radio validation data demonstrating the extraction efficiency of the proposed single analyte enforcement methods were not submitted. However, the available data indicate fenazaquin tolerances may be enforced using the existing FDA Multiresidue Methods in PAM, Vol I. Testing of fenazaquin through the multiresidue methods indicated that fenazaquin was adequately recovered from whole oranges and from orange oil. Radiovalidation data for the single analyte methods should be submitted with future petitions.

2. For future petitions, the following information is needed for each of the ILV studies: (i) a description of the number of trials required to obtain the reported recovery values; (ii) a description of any problems encountered and a written description of any changes or modifications that were made to the method during the ILV; (iii) discussion of any steps considered critical; (iv) time required for analysis of one set of samples; and (v) details of communications between the independent laboratory and the method developers or others familiar with the method.

3. Gowan must develop and validate (ILV and radiovalidation) an analytical enforcement method capable of quantitating parent fenazaquin and its dimer prior to conducting crop field trial studies to support any new uses.

14. Labeling Deficiencies

- Although a general summary of the use directions on apples, pears and citrus fruits was provided, additional information is required detailing the maximum allowed use rates and minimum PHIs allowed for apples, pears and citrus fruits in each country in which these uses are allowed. Representative labels (and translations) should be submitted for each crop from the major growing regions (Europe, South America, and Asia).

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DISCLAIMER: The information presented in this Pesticide Fact Sheet is for informational purposes only and may not be used to fulfill data requirements for pesticide registration and reregistration.

APPENDIX I:

GLOSSARY OF TERMS AND ABBREVIATIONS

ADNT	**Acute delayed neurotoxicity**
a.i.	**Active Ingredient**
aPAD	**Acute Population Adjusted Dose**
ARI	**Aggregate Risk Index**
BCF	**Bioconcentration Factor**
CAS	**Chemical Abstracts Service**
ChE	**Cholinesterase**
ChEI	**Cholinesterase inhibition**
cPAD	**Chronic Population Adjusted Dose**
%CT	**Percent crop treated**
DAT	**Days after treatment**
DEEM-FCID	**Dietary Exposure Evaluation Model - Food Consumption Intake Database**
DNA	**Deoxyribonucleic acid**
DNT	**Developmental neurotoxicity**
DIT	**Developmental immunotoxicity**
DWLOC	**Drinking Water Level of Comparison.**
EC	**Emulsifiable Concentrate Formulation**
EEC	**Estimated Environmental Concentration. The estimated pesticide concentration in an environment, such as a terrestrial ecosystem.**
EPA	**U.S. Environmental Protection Agency**
FQPA	**Food Quality Protection Act**
GLC	**Gas Liquid Chromatography**
GLN	**Guideline Number**
LC_{50}	**Median Lethal Concentration. A statistically derived concentration of a substance that can be expected to cause death in 50% of test animals. It is usually expressed as the weight of substance per weight or volume of water, air or feed, e.g., mg/l, mg/kg or ppm.**
LD_{50}	**Median Lethal Dose. A statistically derived single dose that can be expected to cause death in 50% of the test animals when administered by the route indicated (oral, dermal, inhalation). It is expressed as a weight of substance per unit weight of animal, e.g., mg/kg.**
LOAEL	**Lowest Observed Adverse Effect Level**
LOAEC	**Lowest Observed Adverse Effect Concentration**
LOC	**Level of Concern**

LOD	**Limit of Detection**
LOQ	**Limit of quantitation**
mg/kg/day	**Milligram Per Kilogram Per Day**
mg/L	**Milligrams Per Liter**
MOE	**Margin of Exposure**
MRID	**Master Record Identification (number), EPA's system of recording and tracking studies submitted**
MTD	**Maximum tolerated dose**
NA	**Not Applicable**
NOEC	**No Observable Effect Concentration**
NOEL	**No Observed Effect Level**
NOAEL	**No Observed Adverse Effect Level**
NOAEC	**No Observed Adverse Effect Concentration**
NPDES	**National Pollutant Discharge Elimination System**
OP	**Organophosphate**
OPP	**EPA Office of Pesticide Programs**
OPPTS	**EPA Office of Prevention, Pesticides and Toxic Substances**
PAD	**Population Adjusted Dose**
PAG	**Pesticide Assessment Guideline**
PAM	**Pesticide Analytical Method**
PHED	**Pesticide Handler's Exposure Data**
PHI	**Preharvest Interval**
ppb	**Parts Per Billion**
PPE	**Personal Protective Equipment**
ppm	**Parts Per Million**
PRZM/ EXAMS	**Tier II Surface Water Computer Model**
RAC	**Raw Agriculture Commodity**
RBC	**Red Blood Cell**
RED	**Reregistration Eligibility Decision**
REI	**Restricted Entry Interval**
RfD	**Reference Dose**
SCI-GROW	**Tier I Ground Water Computer Model**
SF	**Safety Factor**
TGAI	**Technical Grade Active Ingredient**
UF	**Uncertainty Factor**
µg	**micrograms**
µg/L	**Micrograms Per Liter**
µL/g	**Microliter per gram**
USDA	**United States Department of Agriculture**
WPS	**Worker Protection Standard**

APPENDIX II:
Citations Considered to be Part of the Data Base Supporting the Registration of

Fenazaquin

MRID	Citation Reference
43798700	DowElanco (1995) Submission of Toxicology Data in Support of the Registration of Fenazaquin. Transmittal of 2 Studies.
43798701	Francis, P.; Boss, S.; Gries, C. (1992) A Carcinogenicity Study in Syrian Golden Hamsters Administered EL-436 (Compound 193136) Orally for 18 Months: Lab Project Number: T6K TCHMST AM: HC0307: H00390. Unpublished study prepared by Lilly Research Labs. 2781 p.
43798702	Francis, P. (1995) Supplement to the "Carcinogenicity Study in Syrian Golden Hamsters Administered EL-436 (Compound 193136) Orally for 18 Months": A Review of the Historical Incidence of Adrenocortical Adenomas in Hamsters: Lab Project Number: HC0307: H00390: H00790. Unpublished study prepared by Lilly Research Labs. 12 p.
44742900	Dow Agrosciences LLC (1999) Submission of Toxicity and Residue Chemistry Data in Support of the Petition for Tolerance for Fenazaquin in/on Apples, Pears,and Citrus Fruits. Transmittal of 21 Studies.
44742901	Althaus, W.; Magnussen, J. (1992) Disposition and Metabolism of Orally Administered (carbon-14)-EL-436 in Fischer 344 Rats: Lab Project Number: R18289: R31489: R37189. Unpublished study prepared by DowElanco. 193 p.
44742902	Dow AgroSciences Europe (1990) Body Weight Data for Rats, Hamsters, Mice from Studies R04790, R12188, R27388, R02789, R05289, R05389, H00489, H00190, M21989, M06288: Lab Project Number: T6K-006. Unpublished study prepared by Jellinek, Schwartz, and Connolly, Inc. 92 p.
44742903	Stott, W.; Vedula, U.; Bond, D. et al. (1993) Potential of XDE-436 Analogues to Induce Hepatic Hypertrophy and Peroxisome ACYL-CoA Oxidase Activity in Mice: Lab Project Number: T2.02. 201.000.001. Unpublished study prepared by The Dow Chemical Company. 38 p.
44742904	Francis, P.; Parton, J.; Garriott, M. (1989) The Effect of EL-436 (Compound 193136) on the in Vivo Induction of Micronuclei in Bone Marrow of ICR Mice: Lab Project Number: 890718ATX2884: 890725MNT2884. Unpublished study prepared by The Lilly Research Laboratories. 31 p.
44742905	Francis, P.; Brunny, J.; Garriott, M. (1989) The Effect of EL-436 (Compound 193136) on the in Vivo Induction of Sister Chromatid Exchange in Bone Marrow of Male CD-1 Mice: Lab Project Number: 890911ATX2884: 89092926SCE2884. Unpublished study prepared by The Lilly Research Laboratories. 35 p.
44742906	Francis, P.; Yount, D.; Garriott, M. (1989) The Effect of EL-436 (Compound 193136) on the Induction of Unscheduled DNA Synthesis in Primary Cultures of Adult Rat Hepatocytes: Lab Project Number: 890516UDS2884: 890718UDS2884. Unpublished study prepared by The Lilly Research Laboratories. 29 p.
44742907	Francis, P.; Kindig, D.; Garriott, M. (1989) The Effect of EL-436 (Compound 193136) on the in Vitro Induction of Chromosome Aberrations in Chinese Hamster Ovary Cells: Lab Project Number: 890725CTX2884: 890802CAB2884: 890816CAB2884. Unpublished study prepared by The Lilly Research Laboratories. 41 p.
44742908	Francis, P.; Michealis, K.; Ricardson, K. (1989) The Effect of EL-436 (Compound 193136) on the Induction of Forward Mutation at the Thymidine Kinase Locus of

L5178Y Mouse Lymphoma Cells: Lab Project Number: 890719MLT2884: 890726MLA2884: 890816MLA2884. Unpublished study prepared by The Lilly Research Laboratories. 51 p.

44742909 Francis, P.; Scheuring, J.; Ricardson, K. (1989) The Effect of EL-436 (Compound 193136) on the Induction of Reverse Mutations in Salmonella Typhimurium and Escherichia coli Using the Ames Test: Lab Project Number: 890327AMT2884: 890814AMS2884. Unpublished study prepared by The Lilly Research Laboratories. 45 p.

44742910 Francis, P. (1990) EL-436 (Compound 193136): Experimental Miticide: Justification for Use of the Hamster in an Oncogenic Study. Unpublished study prepared by The Lilly Research Laboratories. 44 p. {OPPTS 870.4100}

44742911 Dennis, S. (1998) Supplemental Report for: (carbon-14)-XDE-436 Nature of Residues in Apples: Lab Project Number: ABC-0455SUPPL: ABC-0455. Unpublished study prepared by Jellinek Schwartz and Connolly, Inc. 459 p.

44742912 Dennis, S. (1998) Supplemental Report for: The Disposition of (carbon-14)-Fenazaquin in the Lactating Goat: Lab Project Number: GHE-P-6987SUPPL. Unpublished study prepared by Jellinek Schwartz and Connolly, Inc. 1078 p.

44742913 Dennis, S. (1998) Supplemental Report for: Nature of (carbon-14)-XDE-436 Residues in Oranges: Lab Project Number: ABC-0454SUPPL. Unpublished study prepared by Jellinek, Schwartz and Connolly, Inc. 426 p.

44742914 Dennis, S.; Perkins, J. (1998) Determination of Fenazaquin in/on Various Raw Agricultural and Processed Commodities: Lab Project Number: JSC-98-100: DOWM101198-DE92C: ERC91.17. Unpublished study prepared by Jellinek, Schwartz and Connolly, Inc. 297 p. {OPPTS 860.1340}

44742915 Gambie, A. (1993) Independent Method Validation of DowElanco Method ERC 91.9 Determination of Fenazaquin in Residues in Apples: Lab Project Number: R92-36L: GHE-P-3051: IRI 360180. Unpublished study prepared by Inveresk Research International Limited. 56 p. {OPPTS 860.1340}

44742916 Rawle, N. (1998) Independent Method Validation for the Determination of Fenazaquin in Apple Juice: Lab Project Number: CEMS-913: REV 98-012. Unpublished study prepared by CEM Analytical Services Ltd. 20 p. {OPPTS 860.1340}

44742917 Rawle, N. (1998) Independent Method Validation for the Determination of Fenazaquin in Orange and Lemon Juice: Lab Project Number: REV 98-013: CEMS-914. Unpublished study prepared by CEM Analytical Services Ltd. 36 p. {OPPTS 860.1340}

44742918 Long, T.; Gill, J. (1996) Independent Method Validation of DowElanco Analytical Method ERC 94.15 for the Determination of Fenazaquin in Orange and Mandarin Whole Fruit: Lab Project Number: GHE-P-5115: REV96-009. Unpublished study prepared by Restec Laboratories Ltd. 46 p. {OPPTS 860.1340}

44742919 Conrath, B.; West, S. (1998) Multi-Residue Methods Testing for Fenazaquin: Lab Project Number: 44216: RES97095. Unpublished study prepared by ABC Laboratories Inc. 67 p. {OPPTS 860.1360}

44742920 Dennis, S. (1998) Supplemental Report for: The Stability of Fenazaquin in Fortified Apples Stored Under Frozen Conditions: Lab Project Number: GHE-P-3048SUPPL. Unpublished study prepared by Jellinek, Schwartz and Connolly, Inc. 690 p. {OPPTS 860.1380}

44742921 Dennis, S. (1998) Supplemental Report for: The Stability of Fenazaquin in Fortified Orange Peel and Flesh Under Frozen Conditions: Lab Project Number: GHE-P-

3154SUPPL. Unpublished study prepared by Jellinek, Schwartz and Connolly, Inc. 840 p. {OPPTS 860.1380}

44743000 Dow Agrosciences LLC (1998) Submission of Residue Chemistry Data in Support of the Petition for Tolerance of Fenazaquin in/on Apples, Pears, and Citrus Fruits. Transmittal of 18 Studies.

44743001 Dennis, S. (1998) Supplemental Report for: Livestock Feeding Study with (carbon-14)-Fenazaquin in Dairy Cattle: Lab Project Number: GHE-P-3159SUPPL: R92-7: DWC 632. Unpublished study prepared by Dow AgroSciences Europe. 300 p. {OPPTS 860.1480}

44743002 Hastings, M. (1998) Residues of Fenazaquin in Apples at Harvest Following a Single Application of Magister 200SC (EF-1127), South Africa--1997: Lab Project Number: GHE-P-7372: R97-122. Unpublished study prepared by Dow AgroSciences Europe. 32 p.

44743003 Hastings, M. (1998) Residues of Fenazaquin in Pears at Harvest Following a Single Application of Magister 200SC (EF-1127), South Africa--1997: Lab Project Number: R97-123: GHE-P-7373. Unpublished study prepared by Dow AgroSciences Europe. 30 p. {OPPTS 860.1500}

44743004 Dennis, S. (1998) Supplemental Report for: Residues of Fenazaquin in Mandarins at Intervals Following a Single Application of Magister 100 EC (EF-1131), Spain--1996: Lab Project Number: GHE-P-6256 SUPPL: R96-169. Unpublished study prepared by Dow AgroSciences Europe. 373 p. {OPPTS 860.1500}

44743005 Dennis, S. (1998) Supplemental Report for: Residues of Fenazaquin in Oranges at Harvest Following a Single Application of Magister 10 (EF-1131), Spain--1994: Lab Project Number: GHE-P-4064SUPPL: R94-135. Unpublished study prepared by Dow AgroSciences Europe. 99 p. {OPPTS 860-1500}

44743006 Dennis, S. (1998) Supplemental Report for: Fenazaquin Residues in Pears at Harvest Following Application of an Magister SC Formulation (EF-1127)--Italy 1992: Lab Project Number: GHE-P-3002SUPPL: R92-42. Unpublished study prepared by Dow AgroSciences Europe. 159 p. {OPPTS 860.1500}

44743007 Dennis, S. (1998) Supplemental Report for: Residues of Fenazaquin in Oranges at Harvest Following a Single Application of Magister 100 EC (EF-1131), Spain--1996: Lab Project Number: GHE-P-6227SUPPL: R96-066. Unpublished study prepared by Dow AgroSciences Europe. 168 p. {OPPTS 860.1500}

44743008 Dennis, S. (1998) Supplemental Report for: Fenazaquin Residues in Lemons at Harvest and in Lemon Process Fractions Following Application of an EC Formulation (EF-1131)--Spain 1991: Lab Project Number: GHE-P-2676SUPPL: R91-41: XDE-436.M. Unpublished study prepared by Dow AgroSciences Europe. 1320 p. {OPPTS 860.1500, 860.1520}

44743009 Dennis, S. (1998) Supplemental Report for: Residues of Fenazaquin in Pears at Harvest Following Application of Magister 200 SC (EF-1127)--France 1993: Lab Project Number: GHE-P-3474SUPPL: R93-81. Unpublished study prepared by Dow AgroSciences Europe. 151 p. {OPPTS 860.1500}

44743010 Dennis, S. (1998) Supplemental Report for: Residues of Fenazaquin in Oranges at Intervals Following a Single Application of Magister 100 EC (EF-1131), Spain-1996: Lab Project Number: GHE-P-6228SUPPL: R96-067. Unpublished study prepared by Dow AgroSciences Europe. 292 p. {OPPTS 860.1500}

44743011 Dennis, S. (1998) Supplemental Report for: Residues of Fenazaquin in Oranges at Intervals Following a Single Application of Magister 100 EC (EF-1131) Spain--1996:

Lab Project Number: GHE-P-6255SUPPL: R96-164. Unpublished study prepared by Dow AgroSciences Europe. 171 p. {OPPTS 860.1500}

44743012 Dennis, S. (1998) Supplemental Report for: Residues of Fenazaquin in Mandarins at Harvest Following a Single Application of Magister 100 EC (EF-1131) Spain--1995: Lab Project Number: GHE-P-5145SUPPL: R95-153. Unpublished study prepared by Dow AgroSciences Europe. 136 p. {OPPTS 860.1500}

44743013 Dennis, S. (1998) Supplemental Report for Residues of Fenazaquin in Lemons at Harvest Following Application of an EC Formulation (EF-1131)--Italy 1995: Lab Project Number: GHE-P-3081SUPPL: R92-43: XDE-436.M. Unpublished study prepared by Dow AgroSciences Europe. 379 p. {OPPTS 860.1500}

44743014 Dennis, S. (1998) Supplemental Report for: Residues of Fenazaquin in Mandarins at Intervals Following a Single Application of Magister 10 (EF-1131), Spain--1994: Lab Project Number: GHE-P-4065S SUPPL: R94-136. Unpublished study prepared by Dow AgroSciences Europe. 157 p. {OPPTS 860.1500}

44743015 Dennis, S. (1998) Supplemental Report for: The Effect of Application Timing on Fenazaquin Residues in Apples at Harvest Using an SC Formulation (EF-1127)--France 1990: Lab Project Number: GHE-P-2534SUPPL: R90-23. Unpublished study prepared by Dow AgroSciences Europe. 248 p.

44743016 Dennis, S. (1998) Supplemental Report for: Fenazaquin Residues in Apples at Intervals Following Application of an SC Formulation (EF-1127)--France 1990: Lab Project Number: GHE-P-2536SUPPL: R90-55. Unpublished study prepared by Dow AgroSciences Europe. 652 p. {OPPTS 860.1500}

44743017 Dennis, S. (1998) Supplemental Report for: Fenazaquin Residues in Apples at Harvest Following Application of an SC Formulation (EF-1127)--Italy 1992: Lab Project Number: GHE-P-2877RSUPPL: R92-41: XDE-436.M. Unpublished study prepared by Dow AgroSciences Europe. 260 p. {OPPTS 860.1500}

44743018 Dennis, S. (1998) Supplemental Report for: Residues of Fenazaquin in Apples at Harvest Following One or Two Applications of Magister 200 SC (EF 1127)--Italy 1993: Lab Project Number: GHE-P-3328SUPPL: R93-121: 360898. Unpublished study prepared by Dow AgroSciences Europe. 60 p. {OPPTS 860.1500}

44743100 Dow Agrosciences LLC (1999) Submission of Residue Chemistry and Product Chemistry Data in Support of the Petition for Tolerance of Fenazaquin in/on Apples, Pears, and Citrus Fruits. Transmittal of 30 Studies.

44743101 Dennis, S. (1998) Supplemental Report for: Residues of Fenazaquin in Apples at Harvest Following Application of Magister 200 SC (EF 1127)--Italy 1993: Lab Project Number: GHE-P-3327SUPPL: R93-84B: 360882. Unpublished study prepared by Dow Agrosciences Europe. 152 p. {OPPTS 860.1500}

44743102 Dennis, S. (1998) Supplemental Report for: Residues of Fenazaquin in Apples at Harvest Following Application of an SC Formulation (EF 1127)--Spain 1992: Lab Project Number: GHE-P-2888SUPPL. Unpublished study prepared by Dow Agrosciences Europe. 136 p. {OPPTS 860.1500}

44743103 Dennis, S. (1998) Supplemental Report for: Fenazaquin Residues in Apples at Intervals Following Application of an SC Formulation (EF 1127)--UK 1990: Lab Project Number: GHE-P-2535SUPPL: R90-53: ERC91.9. Unpublished study prepared by Dow Agrosciences Europe. 459 p. {OPPTS 860.1500}

44743104 Dennis, S. (1998) Supplemental Report for: Fenazaquin Residues in Apples at Intervals and in Apple Process Fractions Following a Single Application of an SC Formulation (EF 1127)--UK 1991: Lab Project Number: GHE-P-2637SUPPL: 91/21: ERC 91.9.

Unpublished study prepared by Dow Agrosciences Europe. 1701 p. {OPPTS 860.1520}

44743105 Dennis, S. (1998) Supplemental Report for: Fenazaquin Residues in Citrus (Oranges and Mandarins) Flesh and Peel at Intervals Following Application of an EC Formulation (EF 1131)--Spain 1990: Lab Project Number: GHE-P-2537SUPPL: R90-6A. Unpublished study prepared by Dow Agrosciences Europe. 1513 p. {OPPTS 860.1500}

44743106 Dennis, S. (1998) Supplemental Report for: Fenazaquin Residues in Oranges at Harvest Following an Application of an EC Formulation (EF 1131)--Italy 1992: Lab Project Number: GHE-P-3122SUPPL: R9244B1.S: R 92-441. Unpublished study prepared by Dow Agrosciences Europe. 231 p. {OPPTS 860.1500}

44743107 Dennis, S. (1998) Supplemental Report for: Fenazaquin Residues in Orange Process Fractions Following Application of an EC Formulation (EF 1131)--Spain 1992: Lab Project Number: GHE-P-3225SUPPL: AG/REP/13958: AMH/AG267. Unpublished study prepared by Dow Agrosciences Europe. 246 p. {OPPTS 860.1520}

44743108 Dennis, S. (1998) Supplemental Report for: Residues of Fenazaquin in Oranges at Harvest Following Application of Pride 200 SC (EF 1127)--Morocco 1993: Lab Project Number: GHE-P-3533SUPPL: CEMS-315: R93-142. Unpublished study prepared by Dow Agrosciences Europe. 112 p. {OPPTS 860.1500}

44743109 Dennis, S. (1998) Supplemental Report for: Residues of Fenazaquin in Mandarin Peel and Pulp Following Application of an SC Formulation (EF 1127), Spain--1991: Lab Project Number: GHE-P-2678SUPPL: R91.40: ERC 91.17. Unpublished study prepared by Dow Agrosciences Europe. 707 p. {OPPTS 860.1500}

44743110 Dennis, S. (1998) Supplemental Report for: Fenazaquin Residues in Oranges at Harvest and in Orange Process Fractions Following a Single Application of an SC Formulation (EF 1127)--Spain 1991: Lab Project Number: GHE-P-2677SUPPL. Unpublished study prepared by Dow Agrosciences Europe. 761 p. {OPPTS 860.1500}

44743111 Dennis, S. (1998) Supplemental Report for: Residues of Fenazaquin in Apples at Harvest Following a Single Application of Magister 200 SC Formulation (EF 1127), Germany--1995: Lab Project Number: GHE-P-4683SUPPL: RL95-073A: RL95-073B. Unpublished study prepared by Dow Agrosciences Europe. 70 p. {OPPTS 860.1500}

44743112 Pinheiro, A. (1997) Amended Report for Residues of Fenazaquin in Apples After Treatment with Magister 200 SC--Chile: Lab Project Number: LARP95178R: GHB-P 369-R3. Unpublished study prepared by Dow AgroSciences. 76 p. {OPPTS 860.1500}

44743113 Dennis, S. (1998) Supplemental Report for: Residues of Fenazaquin in Mandarins at Harvest Following a Single Application of Magister 10 Formulation (EF 1131), Spain--1994: Lab Project Number: GHE-P-4066SUPPL: R94-137. Unpublished study prepared by Dow Agrosciences Europe. 95 p.

44743114 Gagnotto, S.; De Vito, R.; Silva, C. (1998) Amended Report for Residues of Fenazaquin in Pears Following Application of Magister 200 SC--Argentina, 1993-95: Lab Project Number: LARP C017: GHB-P 309R1. Unpublished study prepared by Dow AgroSciences. 60 p. {OPPTS 860.1500}

44743115 Amaral, L.; Silva, C. (1998) Amended Report for Residues of Fenazaquin in Pears After Treatment with Magister 200 SC--Chile: Lab Project Number: LARP95179R: GHB-P 365R. Unpublished study prepared by Dow AgroSciences. 72 p. {OPPTS 860.1500}

44743116 Gagnotto, S.; Silva, C.; De Vito, R. (1998) Amended Report for Residues of Fenazaquin in Apples Following Application of Magister 200 SC--Argentina, 1993-95: Lab Project Number: LARP C016: GHB-P 308-R1. Unpublished study prepared by

Dow AgroSciences. 63 p. {OPPTS 860.1500}

44743117 Dennis, S. (1998) Supplemental Report for: Fenazaquin Residues in Oranges at Harvest and in Orange Process Fractions (Juice and Marmalade) Following Application of an EC Formulation (EF 1131)--Spain 1992: Lab Project Number: GHE-P-3082RSUPPL: R92-47B 93/96: R92-47B 93/97. Unpublished study prepared by Dow Agrosciences Europe. 598 p. {OPPTS 860.1520}

44743118 Utting, A.; Penn, M. (1998) Residues of Fenazaquin in Apples and Pears After Application of Magister 20SC Acaricide in New Zealand, 1997: Lab Project Number: GHF-P 1697: 96-329-E: 97-330-E. Unpublished study prepared by Dow AgroSciences. 29 p. {OPPTS 860.1500}

44743119 Dennis, S. (1998) Supplemental Report for: Residues of Fenazaquin in Apples and Pears After Application of Magister 20SC Acaricide in New Zealand, 1997: Lab Project Number: GHE-P-1697SUPPL: 96-330E. Unpublished study prepared by Dow Agrosciences Europe. 728 p. {OPPTS 860.1500}

44743120 Moreland, J.; Ghosh, D.; Iosson, I. (1992) Characterisation of DE 436 Technical, RMM 1836: Lab Project Number: 91033/DB. Unpublished study prepared by Dowelanco Ltd. 46 p. {OPPTS 830.1670}

44743121 Richardson, N. (1996) Fenazaquin (Technical) Initial Characterisation: Lab Project Number: 91003/CE: GHE-P-5315: 9479A. Unpublished study prepared by Huntingdon Life Sciences. 110 p.

44743122 Dennis, S. (1998) Fenazaquin-Description of Manufacturing Process and Solubility Data: Lab Project Number: JSC-98-103. Unpublished study prepared by Dow Agrosciences Europe Inc. 19 p.

44743123 Richardson, N. (1996) Fenazaquin Technical--Five Batch Analysis: Lab Project Number: GHE-P-5317: 91033/CF. Unpublished study prepared by Huntingdon Life Sciences, Inc. 119 p.

44743124 Knowles, S.; Drossopoulos, M. (1998) Re-assay Fenazaquin, AGR289213: Lab Project Number: GHE-P-7285: P98-039. Unpublished study prepared by Huntingdon Life Sciences, Inc. 21 p.

44743125 Richardson, N.; Comb, A. (1996) Fenazaquin Technical--Impurity Standard Characterisation: Lab Project Number: GHE-P-5319: 91033/CF. Unpublished study prepared by Huntingdon Life Sciences, Inc. 85 p.

44743126 Knowles, S. (1992) XDE 436 (Technical): Determination of Physico-Chemical Properties: Final Report: Lab Project Number: DES/061: 92/DES061/0338: 91033/CA. Unpublished study prepared by Life Science Research, Ltd. and ICI FCMO. 137 p.

44743127 Saunders, D.; Powers, F. (1991) Vapor Pressure of EL-436: Lab Project Number: AAC8849. Unpublished study prepared by Dowelanco. 46 p.

44743128 Knowles, S. (1992) XDE 436 (Technical): Determination of Physico-Chemical Properties: (Vapour Pressure Determination) Final Report: Lab Project Number: DES/061: 93/DES061/0305: 91003/CA. Unpublished study prepared by Pharmaco, Ltd. and University of Leeds. 39 p.

44743129 Boothroyd, S. (1998) Determination of the Dissociation Constant of XDE 436 (Technical) Batch Number RMM 1836: Lab Project Number: 91033/CD: GHE-P-3168. Unpublished study prepared by Pharmaco, Ltd. 44 p.

44743130 Saunders, D.; Powers, F. (1989) Octanol/Water Partition Coefficient of El 436: Lab Project Number: AAC8841. Unpublished study prepared by DowElanco. 32 p.

45029900 Great Lakes Chemical Corporation (1998) Submission of Toxicity, and Residue Chemistry Data in Support of the Petition for Tolerance of Fenazaquin in/on Apples, Pears, and Citrus Fruits. Transmittal of 56 Studies.

45029901 Cosse, P.; Stebbins, K.; Stewart, H. et al. (1992) XDE-436: 13-Week Dietary Toxicity Study in Beagle Dogs: Lab Project Number: DR-0316-5240-002: DR-0316-5240-002A. Unpublished study prepared by The Dow Chemical Company. 217 p.

45029902 Scott, W.; Cosse, P.; Stebbins, K. et al. (1991) XDE-436: Palatability Probe and Two-Week Repeated Dosing Toxicity Study in Beagle Dogs: Lab Project Number: DR-0316-5240-001: DR-0316-5240-001P: DR-0316-5240-001A. Unpublished study prepared by The Dow Chemical Company. 72 p.

45029903 Francis, P.; Boss, S.; Gries, C. (1992) A Subchronic Study in Syrian Golden Hamsters Treated Orally with EL-436 (Compound 193136) for 3 Months: Lab Project Number: H00190. Unpublished study prepared by Lilly Research Laboratories. 488 p.

45029904 Cocke, P.; Francis, P.; Gries, C. (1992) A Subchronic Toxicity Study in Fischer 344 Rats Given EL-436 (Compound 193136) in the Diet for 3 Months: Lab Project Number: R27388. Unpublished study prepared by Lilly Research Laboratories. 373 p.

45029905 Francis, P.; Ward, V.; Gries, C. (1992) A Subchronic Toxicity Study in Fischer 344 Rats Treated Orally with EL-436 (Compound 193136) for 3 Months Followed by a 1-Month Reversibility Period: Lab Project Number: R12188. Unpublished study prepared by Lilly Research Laboratories. 545 p.

45029906 Cosse, P.; Sebbins, K.; McGuirk, R. et al. (1993) XDE-436: 1-Year Dietary Toxicity Study in Beagle Dogs: Lab Project Number: DR-0316-5240-003: PRE XDE-436-1YR. Unpublished study prepared by The Dow Chemical Company. 259 p.

45029907 Cocke, P.; Francis, P.; Boss, S. et al. (1992) A Chronic/Oncogenic Toxicity Study in Fischer 344 Rats Administered EL-436 (Compound 193136) in the Diet for 2 Years: Lab Project Number: R05289: R05389. Unpublished study prepared by Lilly Research Laboratories. 3209 p.

45029908 Proudlocke, R. (1993) Fenazaquin: In Vivo Rat Liver DNA Repair Test: Lab Project Number: DWC 662/931816. Unpublished study prepared by Huntingdon Research Centre Ltd. 47 p. {OPPTS 870.5550}

45029909 Christian, M.; Martin, T.; Hoberman, A. (1992) Reproductive Effects of EL-436 (Compound 193136) Administered Orally Via Gavage to Crl: CD(SD)BR Rats for Two Generations, with One Litter per Generation: Lab Project Number: 112-003. Unpublished study prepared by Argus Research Laboratories, Inc. 782 p.

45029910 Christian, M.; Martin, T.; Hoberman, A. (1992) Reproductive Effects of EL-436 (Compound 193136) Administered Orally Via Gavage to Crl: CD(SD)BR Rats for Two Generations, with One Litter per Generation: Lab Project Number: 112-003. Unpublished study prepared by Argus Research Laboratories, Inc. 782 p.

45029911 Francis, P.; Higdon, G. (1989) A Teratology Study of EL-436 (Compound 193136) Administered By Gavage to CD Rats: Lab Project Number: R08989. Unpublished study prepared by Lilly Research Laboratories. 365 p.

45029912 Francis, P.; Higdon, G. (1990) A Teratology Study of EL-436 (Compound 193136) Administered By Gavage to New Zealand White Rabbits: Lab Project Number: B02289. Unpublished study prepared by Lilly Research Laboratories. 285 p.

45029913 Francis, P.; Boss, S.; Gries, C. (1992) A Carcinogenicity Study in Syrian Golden Hamsters Administered EL-436 (Compound 193136) Orally for 18 Months: Lab Project Number: H00390: H00790: HC0307. Unpublished study prepared by Lilly Research Laboratories. 2781 p.

45029914 MacDonald, A. (1998) Characterisation of Unknown Fenazaquin Metabolites from Apples: Lab Project Number: GHE-P-7205: E98-001. Unpublished study prepared by Dow AgroSciences. 122 p.

45029915 Magnussen, J.; Wooten, H. (1992) (Carbon-14) XDE-436 Nature of Residues in Apples: Lab Project Number: ABC-0455. Unpublished study prepared by DowElanco. 68 p.

45029916 Portwood, D. (1998) The Disposition of (carbon-14)-Fenazaquin in the Lactating Goat: Lab Project Number: GHE-P-6987: 3L. Unpublished study prepared by Inveresk Research International Limited. 157 p. {OPPTS 860.1300}

45029917 Caley, C. (1997) The Metabolism of Fenazaquin in Apples-Live Phase and Initial Chromatography: Lab Project Number: GHE-P-7103: 14761. Unpublished study prepared by Inveresk Research International Limited. 144 p. {OPPTS 860.1300}

45029918 Gambie, A.; Long, T.; Draper, R. (1993) The Stability of Fenazaquin in Fortified Apples Stored Under Frozen Conditions: Lab Project Number: ST91-5: GHE-P-3048. Unpublished study prepared by DowElanco Europe. 12 p.

45029919 Gambie, A.; Draper, R. (1993) The Stability of Fenazaquin in Fortified Orange Peel and Flesh Under Frozen Conditions: Lab Project Number: ST91-6: GHE-P-3154. Unpublished study prepared by DowElanco Europe. 18 p.

45029920 Gambie, A.; Briant, R. (1993) Livestock Feeding Study with (carbon-14)-Fenazaquin in Dairy Cattle: Lab Project Number: R992-7: GHE-P-3159: HRC/DWC 632/930597. Unpublished study prepared by DowElanco Europe, and Huntingdon Research Centre Ltd. 68 p. {OPPTS 860.1480}

45029921 Hastings, M.; Thorpe, T. (1997) Residues of Fenazaquin in Mandarins at Intervals Following A Single Application of Magister 100 EC (EF-1131), Spain-1996: Lab Project Number: GHE-P-6256: R96-169: R96-169 A. Unpublished study prepared by DowElanco Europe. 42 p. {OPPTS 860.1500}

45029922 Butcher, S. (1995) Residues of Fenazaquin in Oranges at Harvests Following a Single Application of Magister 100 EC (EF-1131), Spain-1994: Lab Project Number: R94-135: GHE-P-4064: R94-135 A. Unpublished study prepared by DowElanco Europe. 29 p. {OPPTS 860.1500}

45029923 Gambie, A. ; Laurie, D. (1993) Fenazaquin Residues in Pears at Harvest Following Application of an SC Formulation (EF-1127)-Italy 1992: Lab Project Number: R92-42: GHE-P-3002: R92-42-A. Unpublished study prepared by DowElanco Europe. 20 p. {OPPTS 860.1500}

45029924 Hastings, M.; McLaughlin, E. (1997) Residues of Fenazaquin in Oranges at Harvest Following a Single Application of Magister 100 EC (EF-1131), Spain-1996: Lab Project Number: R96-066: GHE-P-6277: R96-066A. Unpublished study prepared by DowElanco Europe. 39 p.

45029925 Gambie, A.; Long, T. (1993) Fenazaquin Residues in Lemons at Harvest and in Lemon Fractions Following Application of an EC Formulation (EF-1131)-Spain 1991: Lab Project Number: R91-41: GHE-P-2679: R91-41A. Unpublished study prepared by DowElanco Europe. 42 p. {OPPTS 860.1500, 860.1530}

45029926 Butcher, S.; Berryman, T. (1994) Residues of Fenazaquin in Pears at Harvest Following Application of Magister 200 EC (EF-1127)-France 1993: Lab Project Number: R93-81: GHE-P-3474: R93-81A. Unpublished study prepared by DowElanco Europe. 20 p. {OPPTS 860.1500}

45029927 Hastings, M.; McLaughlin, E. (1997) Residues of Fenazaquin in Oranges at Intervals Following a Single Application of Magister 100 EC (EF-1131),-Spain 1996: Lab

Project Number: GHE-P-6228: R96-067: R96-067B. Unpublished study prepared by DowElanco Europe. 41 p. {OPPTS 860.1500}

45029928 Gambie, A.; Perkins, J.; Draper, R. (1993) Fenazaquin Residues in Apples Sampled at Intervals Following a Single Application of an SC Formulation (EF-1127)-Germany 1991: Lab Project Number: GHE-P-2920: R91-39: R91-39B. Unpublished study prepared by DowElanco Europe. 25 p. {OPPTS 860.1500}

45029929 Dennis, S. (1998) Supplemental Report for: Fenazaquin Residues in Apples Sampled at Intervals Following a Single Application of an SC Formulation (EF-1127)-Germany 1991: Lab Project Number: GHE-2920SUPPL. Unpublished study prepared by DowElanco Europe. 832 p. {OPPTS 860.1500}

45029930 Hastings, M.; Thorpe, T. (1997) Residues of Fenazaquin in Oranges at Intervals Following a Single Application of Magister 100 EC (EF-1131)-Spain 1996: Lab Project Number: GHE-P-6255: R96-164: R96-164A. Unpublished study prepared by DowElanco Europe. 32 p.

45029931 Long, T.; Gil, J.; Leeson, H. (1996) Residues of Fenazaquin in Mandarins at Harvest Following a Single Application of Magister 100 EC (EF-1131)-Spain 1995: Lab Project Number: GHE-P-5145: R95-153: R95-153A. Unpublished study prepared by DowElanco Europe. 76 p. {OPPTS 860.1500}

45029932 Gambie, A.; Laurie, D. (1993) Fenazaquin Residues in Lemons at Harvest Following Application of an EC Formulation (EF-1131)-Italy 1992: Lab Project Number: R92-43: GHE-P-3081: R92-43A. Unpublished study prepared by DowElanco Europe. 25 p. {OPPTS 860.1500}

45029933 Butcher, S.; Rickard, G. (1995) Residues of Fenazaquin in Mandarins at Harvest Following a Single Application of Magister 10 (EF-1131)-Spain 1994: Lab Project Number: R94-136: GHE-P-4065: R94-136A. Unpublished study prepared by DowElanco Europe. 30 p. {OPPTS 860.1500}

45029934 Butcher, S.; Rickard, G. (1995) Residues of Fenazaquin in Oranges at Intervals Following a Single Application of Magister 10 (EF-1131), Spain-1994: Lab Project Number: GHE-P-4063: R94-134: R94-134A. Unpublished study prepared by DowElanco Europe. 30 p. {OPPTS 860.1500}

45029935 Dennis, S. (1998) Supplemental Report for: Residues of Fenazaquin in Oranges at Intervals Following a Single Application of Magister 10 (EF-1131), Spain-1994: Lab Project Number: GHE-P-4063SUPPL. Unpublished study prepared by DowElanco Europe. 186 p.

45029936 Perkins, J.; Gambie, A. (1991) The Effect of Application Timing on Fenazaquin Residues in Apples at Harvest Using an SC Formulation (EF-1127)-France 1990: Lab Project Number: R90-23: GHE-P-2534: R90-23A. Unpublished study prepared by DowElanco Europe. 18 p. {OPPTS 860.1500}

45029937 Perkins, J.; Gambie, A.; Draper, R. (1992) Fenazaquin Residues in Apples at Intervals Following Application of an SC Formulation (EF-1127)-France 1990: Lab Project Number: R90-55: GHE-P-2536: R90-55A. Unpublished study prepared by DowElanco Europe. 21 p. {OPPTS 860.1500}

45029938 Gambie, A.; Betts, G. (1992) Fenazaquin Residues in Apples at Harvest Following Application of an SC Formulation (EF-1127)-France 1991: Lab Project Number: GHR-P-2630: R91-45: R91-45A. Unpublished study prepared by DowElanco Europe. 18 p. {OPPTS 860.1500}

45029939 Dennis, S. (1998) Supplemental Report for: Fenazaquin Residues in Apples at Harvest Following Application of an SC Formulation (EF-1127)-France 1991: Lab Project

Number: GHE-P-2630SUPPL. Unpublished study prepared by DowElanco Europe. 148 p. {OPPTS 860.1500 }

45029940 Gambie, A.; Long, T. (1993) Fenazaquin Residues in Apples at Intervals Following a Single Application of an SC Formulation (EF-1127)-Germany 1992: Lab Project Number: R92-36: GHE-P-3151: 360196. Unpublished study prepared by Inveresk Research International. 51 p. {OPPTS 860.1500}

45029941 Dennis, S. (1998) Supplemental Report for: Fenazaquin Residues in Apples at Intervals Following a Single Application of an SC Formulation (EF-1127)-Germany 1992: Lab Project Number: GHE-P-3151SUPPL. Unpublished study prepared by Dow AgroSciences Europe. 495 p. {OPPTS 860.1500}

45029942 Gambie, A.; Long, T. (1993) Fenazaquin Residues in Apples at Harvest Following Application of an SC Formulation (EF-1127)-Italy 1992: Lab Project Number: R92-41: GHE-P-2877R: R92-41A. Unpublished study prepared by DowElanco Limited. 21 p. {OPPTS 860.1500}

45029943 Butcher, S.; Shaw, I. (1994) Residues of Fenazaquin in Apples at Harvest Following One or Two Applications of Magister 200 SC (EF-1127)-Italy 1993: Lab Project Number: R93-121: GHE-P-3328: 360898. Unpublished study prepared by DowElanco Europe. 47 p. {OPPTS 860.1500}

45029944 Butcher, S.; Shaw, I. (1994) Residues of Fenazaquin in Apples at Harvest Following Application of Magister 200 SC (EF-1127)-Italy 1993: Lab Project Number: R93-84: GHE-P-3327: 360882. Unpublished study prepared by DowElanco Europe. 52 p. {OPPTS 860.1500}

45029945 Gambie, A. (1993) Fenazaquin Residues in Apples at Harvest Following Application of an SC Formulation (EF-1127)-Spain 1992: Lab Project Number: R92-46: GHE-P-2888: R92-46A. Unpublished study prepared by DowElanco Europe. 22 p. {OPPTS 860.1500}

45029946 Perkins, J.; Gambie, A.; Teasdale, R. (1992) Fenazaquin Residues in Apples at Intervals Following Application of an SC Formulation (EF-1127)-UK 1990: Lab Project Number: R90-53: GHE-P-2535: R90-53A. Unpublished study prepared by DowElanco Europe. 19 p. {OPPTS 860.1500}

45029947 Gambie, A.; Perkins, J.; Teasdale, R. et al. (1992) Fenazaquin Residues in Apples at Intervals and in Apple Process Fractions Following a Single Application of an SC Formulation (EF-1127)-UK 1991: Lab Project Number: R91-21: GHE-P-2637: R91-21A. Unpublished study prepared by DowElanco Europe. 41 p. {OPPTS 860.1500, 860.1520}

45029948 Perkins, J.; Gambie, A.; Draper, R. et al. (1992) Fenazaquin Residues in Citrus (Oranges and Mandarins) Flesh and Peel at Intervals Following Application of an EC Formulation (EF-1131)-Spain 1990: Lab Project Number: R90-6: GHE-P-2537: R90-6A. Unpublished study prepared by DowElanco Europe. 26 p. {OPPTS 860.1500}

45029949 Gambie, A.; Long, T. (1993) Fenazaquin Residues in Oranges at Harvest Application of an EC Formulation (EF-1131)-Italy 1992: Lab Project Number: R92-44: GHE-P-3122: R92-44A. Unpublished study prepared by DowElanco Europe. 25 p. {OPPTS 860.1500}

45029950 Gambie, A.; Long, T.; Knight, C. (1994) Fenazaquin Residues in Oranges Process Fractions Following Application of an EC Formulation (EF-1131)-Spain 1992: Lab Project Number: R92-47: GHE-P-3225: R92-47A. Unpublished study prepared by DowElanco Europe. 28 p. {OPPTS 860.1520}

45029951 Gale, D.; Brett, T. (1994) Residue of Fenazaquin in Oranges at Harvest Following

Application of Pride 200 SC (EF-1127)-Morocco 1993: Lab Project Number: R93-142: GHE-P-3533: CEMR-315. Unpublished study prepared by DowElanco Europe. 33 p. {OPPTS 860.1500}

45029952 Gambie, A.; Perkins, J.; Draper, R. et al. (1993) Fenazaquin Residues in Mandarin Peel and Pulp Following Application of an SC Formulation (EF-1127)-Spain 1991: Lab Project Number: R91-40: GHE-P-2678: R91-40A. Unpublished study prepared by DowElanco Europe. 24 p. {OPPTS 860.1500}

45029953 Gambie, A.; Laurie, D.; Betts, G. et al. (1993) Fenazaquin Residues in Oranges at Harvest and in Orange Process Fractions Following a Single Application of an SC Formulation (EF-1127)-Spain 1991: Lab Project Number: R91-64: GHE-P-2677: R91-64A. Unpublished study prepared by DowElanco Europe. 44 p. {OPPTS 860.1500, 860.1520}

45029954 Long, T. (1996) Residues of Fenazaquin in Apples at Harvest Following a Single Application of Magister 200 SC (EF-1127), Germany-1995: Lab Project Number: GHE-P-4863: RL95-073: 95089/G1-FFAP. Unpublished study prepared by DowElanco Europe. 131 p. {OPPTS 860.1500}

45029955 Butcher, S.; Rickard, G. (1995) Residues of Fenazaquin in Mandarins at Harvest Following a Single Application of Magister 10 (EF-1131), Spain-1994: Lab Project Number: GHE-P-4066: R94-137. Unpublished study prepared by DowElanco Europe. 30 p. {OPPTS 860.1500}

45029956 Gambie, A.; Laurie, D.; Knight, C. (1993) Fenazaquin Residues in Oranges at Harvest and in Orange Process Fractions (Juice and Marmalade) Following Application of an EC Formulation (EF-1131), Spain-1992: Lab Project Number: GHE-3082R: R92-47: R92-47A. Unpublished study prepared by DowElanco Europe. 82 p. {OPPTS 860.1500, 860.1520}

45054400 Great Lakes Chemical Corporation (1998) Submission of Residue Chemistry Data in Support of the Petition for Tolerance of Fenazaquin in/on Apples, Pears, and Citrus Fruits. Transmittal of 1 Study.

45054401 Berard, D. (1992) Nature of (carbon-14)XDE-436 Residues in Oranges: Lab Project Number: ABC-0454. Unpublished study prepared by DowElanco. 51 p.

46684000 Gowan Company (2005) Submission of Toxicity and Residue Data in Support of the Petition for Tolerance of Fenazaquin for Use on Apples, Pears and Citrus. Transmittal of 3 Studies.

46684001 Christian, M.; Hoar, R.; Hoberman, A. (1991) Reproductive Effects of EL-436 (Compound 193136) Administered Orally via Gavage to Crl:CD (SD) BR Rats for Two Generations with One Litter Per Generation: Final Report. Project Number: 112/002, 112/002P, 193136. Unpublished study prepared by Argus Research Laboratories, Inc., Lancaster Laboratories Incorporated and Purity-Standard Laboratories. 1039 p.

46684002 Perkins, J.; MacDonald, A. (1998) Overview of the Metabolism of Fenazaquin in Apples. Project Number: GHE/P/5586. Unpublished study prepared by Dowelanco Ltd. 19 p.

46684003 Wright, F.; Davis, R.; Francis, P. (1992) The Acute Toxicity of Technical EL-436 (Compound 193136) Administered Orally to Fischer 344 Rats. Project Number: R16290, R40390. Unpublished study prepared by Lilly Research Laboratories. 45 p.

47097600 Gowan Co. (2007) Submission of Product Chemistry, Environmental Fate and Toxicity Data in Support of the Applications for Registration of Fenazaquin Technical and GWN 1708 Miticide/Insecticide. Transmittal of 35 Studies.

47097601 Cochran, R. (2003) Determination of Fenazaquin (XDE 436) in Fenazaquin Technical

(Magister F Acaricidal Chemical) by High Pressure Liquid Chromatography. Project Number: QA03004. Unpublished study prepared by Gowan Co. 8 p.

47097603 Hudson, J. (1990) Storage Stability of EL-426 for Regulatory Submission In EEC Member Countries. Project Number: T6K908903. Unpublished study prepared by Dowelanco. 7 p.

47097604 Perkins, J. (1998) Fenazaquin technical Lot ACD 13041 (AGR297296) - Extention of Stability Data. Project Number: GHE/P/7288. Unpublished study prepared by Dowelanco Ltd. 7 p.

47097606 Jackson, R. (1993) The Soil Leaching Characteristics of Fenzaquin. Project Number: GHE/P/3008. Unpublished study prepared by Dowelanco Ltd. 42 p.

47097607 Saunders, D. (1992) Soil Adsorption and Desorption of EL-436: (GWN-1708 Miticide/Insecticide). Project Number: DGS9202. Unpublished study prepared by Dowelanco. 84 p.

47097610 Diehl, M. (2003) Determination of the Quantum Yield of Direct Photodegradation of [14-Carbon]-Fenazaquin in Aqueous Solution: (GWN-1708 Miticide/Insecticide). Project Number: 849766. Unpublished study prepared by RCC Umweltchemie Ag. 104 p.

47097614 Berard, D. (1993) Dissipation of [14 Carbon] XDE-436 in Soil Exposed to Natural Environmental Conditions: (GWN-1708 Miticide/Insecticide). Project Number: ABC/0417. Unpublished study prepared by Dowelanco North American Environmental. 33 p.

47097615 Butcher, S. (1994) The Dissipation of Fenazaquin in Soil at Intervals Following Application of EF 1127 - Germany 1993: (GWN-1708 Miticide/Insecticide). Project Number: GHE/P/3610, R93/76. Unpublished study prepared by Dowelanco Ltd. 33 p.

47097616 Long, T. (1996) The Dissipation of Fenazaquin in Soil at Intervals Following a Single Application of Magister 200 SC (EF-1127), Italy-1994: (GWN-1708 Miticide/Insecticide). Project Number: GHE/P/4517, R94/112. Unpublished study prepared by Dowelanco Ltd. 62 p.

47097617 Francis, P. (1991) The Acute Toxicity of EL-436 (Compound 193136) to Daphia magna in a Static Test System: (GWN-1708 Miticide/Insecticide) . Project Number: C00289. Unpublished study prepared by Lilly Research Laboratories. 37 p.

47097618 Francis, P.; Cocke, P.; Gunnoe, M. (1989) The Acute Toxicity of EL-436 (Compound 193136) to Rainbow Trout (Salmo gairdneri) in a Flow-through Test System: (GWN-1708 Miticide/Insecticide). Project Number: F00989. Unpublished study prepared by Lilly Research Laboratories. 37 p.

47097619 Francis, P.; Cocke, P.; Mohr, R. (1990) The Acute Toxicity of EL-436 (Compound 193136) to Bluegill (Lepomis macrochirus) in a Flow-through Test System: (GWN-1708 Miticide/Insecticide). Project Number: F02389. Unpublished study prepared by Lilly Research Laboratories. 37 p.

47097620 Grothe, D.; Smith, J. (1989) The Toxicity of EL-436 (Compound 193136) to Bobwhite in a 19-Day Acute Oral Study: (GWN-1708 Miticide/Insecticide). Project Number: A01688. Unpublished study prepared by Lilly Research Laboratories. 59 p.

47097621 Grothe, D.; Smith, J. (1989) The Toxicity of EL-436 (Compound 193136) to Mallards in a 14-Day Acute Oral Study: (GWN-1708 Miticide/Insecticide). Project Number: A00289. Unpublished study prepared by Lilly Research Laboratories. 46 p.

47097622 Grothe, D.; Seacat, J. (1989) The Toxicity of EL-436 (Compound 193136) to Juvenile Bobwhite in a 5-Day Dietary Study: (GWN -1708 Miticide/Insecticide). Project

Number: A01388. Unpublished study prepared by Lilly Research Laboratories. 41 p.

47097623 Grothe, D.; Smith, J. (1989) The Toxicity of EL-436 (Compound 193136) to Juvenile Mallards in a 5-Day Dietary Study: (GWN-1708 Miticide/Insecticide). Project Number: A01488. Unpublished study prepared by Lilly Research Laboratories. 40 p.

47097624 Waldrep, T. (1989) Influence of EL-436 on the Germination of Seeds of Ten Crop Plants: (GWN-1708 Miticide/Insecticide). Project Number: 61989001. Unpublished study prepared by Lilly Research Laboratories. 13 p.

47097625 Waldrep, T. (1989) Influence of EL-436 Postemergence Spray on the Vegetative Vigor of Ten Crop Plants: (GWN-1708 Miticide/Insecticide). Project Number: 61989005. Unpublished study prepared by Lilly Research Laboratories. 20 p.

47097626 Waldrep, T. (1989) Influence of EL-436 Preemergence Spray on the Seedling Emergence and Vegetative Vigor of Ten Crop Plants: (GWN-1708 Miticide/Insecticide). Project Number: 61989007. Unpublished study prepared by Lilly Research Laboratories. 27 p.

47097627 Francis, P.; Rock, G.; StClair, R. (1989) The Acute Dermal Toxicity and Primary Dermal Irritation of Technical EL-436 (Compound 193136) in the New Zealand White Rabbit: (GWN-1708 Miticide/Insecticide). Project Number: B03889. Unpublished study prepared by Lilly Research Laboratories. 27 p.

47097628 Francis, P.; Herman, D.; Wolff, R. (1990) The Acute Inhalation Toxicity of EL-436 (Compound 193136) in the Fischer 344 Rat: (GWN-1708 Miticide/Insecticide). Project Number: R/H/005/89. Unpublished study prepared by Lilly Research Laboratories. 40 p.

47097629 Francis, P.; Rock, G.; StClair, R. (1989) The Acute Ocular Irritation of EL-436 (Compound 193136) in the New Zealand White Rabbit: (GWN-1708 Miticide/Insecticide). Project Number: B05589. Unpublished study prepared by Lilly Research Laboratories. 25 p.

47097630 Francis, P.; Rock, G.; StClair, R. (1989) A Guinea Pig Sensitization Study of EL-436 (Compound 193136): (Fenazaquin Technical). Project Number: G00489. Unpublished study prepared by Lilly Research Laboratories. 33 p.

47097631 Castro, L. (2007) Production Information for Fenazaquin 200 SC. Project Number: GWN/070302A. Unpublished study prepared by Gowan Co. 56 p.

47097632 DowElanco Europe (1992) Analytical Method: XDE 436 SC Acaricide. Project Number: DOWM/101178/DE92A. Unpublished study prepared by Dowelanco Ltd. 16 p.

47097633 Smith, G. (19??) Physical and Chemical Stability of MAGISTER SC: EF 1127. Project Number: 245/001, 90000072. Unpublished study prepared by Dowelanco Ltd. 7 p.

47097634 Hamilton, A. (1992) Generation of Formulation Physico/Chemical Data for Fenazaquin 200G/L SC, EF 1127. Project Number: 90001/DA. Unpublished study prepared by DowElanco Ltd. 20 p.

47097635 Gorg, J. (2003) Statement on the Oxidizing Properties of MAGISTER 200 SC. Project Number: 272/026. Unpublished study prepared by SCC Scientific Consulting Company. 7 p.

47097636 Reed, D.; Olive, C. (1996) Packaging Storage Stability Trial for Fenazaquin 200 g/L SC Acaricide, EF 1127. Project Number: KLP/91/063, GHE/P/3775. Unpublished study prepared by DowElanco Europe. 16 p.

47097638 Long, T.; Press, A.; Greenwood, N. (1996) The Dissipation of Fenazaquin in Soil at

Intervals Following a Single Application of Magister 200 SC Formulation (EF-1127): Italy - 1994. Project Number: R94/112, GHE/P/4517. Unpublished study prepared by Dowelanco Ltd. 62 p.

47097639 Wright, F.; Davis, R.; Francis, P. (1992) The Acute Toxicity of a 200 g/L Aqueous Suspension (AS) Formulation of EL-436 (Compound 193136) Administered Orally to Fischer 344 Rats: (Fenazaquin Technical). Project Number: R39689, R32790, R40290. Unpublished study prepared by Lilly Research Laboratories. 62 p.

47097640 Francis, P.; Rock, G.; StClair, R. (1990) The Acute Dermal Toxicity and Primary Dermal Irritation of a 200 g/L Aqueous Suspension Formulation (FN 7195) of EL-436 (Compound 193136) in the New Zealand White Rabbit: (Fenazaquin Technical). Project Number: B16289. Unpublished study prepared by Lilly Research Laboratories. 31 p.

47097641 Francis, P.; Herman, D.; Allen, D.; et. al. (1990) The Acute Inhalation Toxicity of a 200 g/L Aqueous Suspension Formulation (FN 7195) of EL-436 (Compound 193136) in the Fischer 344 Rat: (Fenazaquin Technical). Project Number: R/H/009/89. Unpublished study prepared by Lilly Research Laboratories. 45 p.

47097642 Francis, P.; Rock, G.; St. Clair, R. (1989) The Acute Ocular Irritation of a 200 g/L Aqueous Suspension Formulation (FN 7195) of EL-436 (Compound 193136) in the New Zealand White Rabbit: (Fenazaquin Technical). Project Number: B16389. Unpublished study prepared by Lilly Research Laboratories. 29 p.

47097643 Wright, F.; Glenn, R.; Francis, P. (1992) A Guinea Pig Sensitization Study of an Aqueous Suspension Formulation (FN 7195) Containing 200 g/L EL-436 (Compound 193136): (Fenazaquin Technical). Project Number: G00591. Unpublished study prepared by Lilly Research Laboratories. 31 p.

47168700 Gowan Company (2007) Submission of Product Chemistry and Fate Data in Support of the Application for Registration of Fenazaquin Technical. Transmittal of 6 Studies.

47168701 Ghosh, D. (1999) Determination of Physical State, Colour, and Odour and Estimation of Photochemical Oxidative Degradation of Fenazaquin. Project Number: GHE/P/6786, P97/027. Unpublished study prepared by Dow Agrosciences Europe. 20 p.

47168702 Lopez, A. (2007) Physical Properties of Fenazaquin. Project Number: 1588W, 1588W/1. Unpublished study prepared by PTRL West, Inc. 22 p.

47168703 Saunders, D. (1991) EL-436 Aged Soil Leaching Study. Project Number: AAC8857. Unpublished study prepared by Dowelanco. 61 p.

47168704 Saunders, D. (1990) Hydrolysis of EL-436 in Aqueous Buffer. Project Number: AAC8856. Unpublished study prepared by Dowelanco. 74 p.

47168705 Berard, D. (1992) Metabolism of [14C]XDE-436 in Soil Maintained Under Aerobic Conditions. Project Number: ABC/0427. Unpublished study prepared by Dowelanco. 55 p.

47168706 Long, T.; Gambie, A. (1993) The Dissipation of Fenzaquin in Three Soil Types Following Application of an SC Formulations (EF 1127) to Bare Soil-Germany 1992: Final Report. Project Number: R92/35. Unpublished study prepared by Dowelanco Ltd. 46 p.